

C/CAG
CITY/COUNTY ASSOCIATION OF GOVERNMENTS
OF SAN MATEO COUNTY

*Atherton • Belmont • Brisbane • Burlingame • Colma • Daly City • East Palo Alto • Foster City • Half Moon Bay • Hillsborough • Menlo Park
Millbrae • Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside*

To: USTF
From: Jill Boone
Date: September 11, 2006
Re: Projections for Energy Use

Introduction

This memo covers the organizations that take part in making projections and planning future projects, the two sets of projections that are made with relevant background information, and recommendations.

Energy Organizations

There are several organizations that track and work on various aspects of energy issues, including PG&E, California Energy Commission (CEC), California Public Utilities Commission (CPUC) and The California Independent System Operator (CAISO). Each organization takes part in calculating projections, developing projects, providing or monitoring service and working with the stakeholders.

The following descriptions were taken from their websites:

“The **California Public Utilities Commission** (CPUC) is a state agency created by Constitutional amendment to regulate privately owned telecommunications, electric, natural gas, water, railroad, rail transit, passenger transportation, and in-state moving companies. The CPUC is responsible for assuring California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California’s economy.” (From www.cpuc.ca.gov)

“The **California Energy Commission** is the state's primary energy policy and planning agency. Created by the Legislature in 1974 and located in Sacramento, the Commission has five major responsibilities:

- Forecasting future energy needs and keeping historical energy data
- Licensing thermal power plants 50 megawatts or larger
- Promoting energy efficiency through appliance and building standards
- Developing energy technologies and supporting renewable energy
- Planning for and directing state response to energy emergency

With the signing of the Electric Industry Deregulation Law in 1998 ([Assembly Bill 1890](#)), the Commission's role includes overseeing funding programs that support public interest energy research; advance energy science and technology through research, development and demonstration; and provide market support to existing, new and emerging renewable technologies.” (From www.energy.ca.gov)

“The California ISO is a not-for-profit public-benefit corporation charged with operating the majority of California’s high-voltage wholesale power grid. Balancing the demand for electricity with an equal supply of megawatts, the ISO is the impartial link between power plants and the utilities that serve more than 30 million consumers. The ISO provides equal access to the grid for all qualified users and strategically plans for the transmission needs of this vital infrastructure.” (From www.caiso.com)

Current Usage Data

There are two different ways to look at our current usage. The first is the overall usage in San Mateo County; data on usage was provided in the Energy Snapshot and the memo that compared CEC data and PG&E data. Overall usage is divided into different sectors, such as agriculture, residential, etc., which makes it easier to determine where energy is being consumed. This breakdown of data will be helpful in determining the potential effectiveness of specific program recommendations.

The second view of our usage is peak demand, which occurs during the summer months on hot afternoons in our area. Future transmission and generation projects are developed to satisfy projected peak demands. Operating criteria for CAISO include maintaining a 7% excess over the projected peak; when available generation resources drop below 7%, there are three stages of alerts:

Stage 1 – Less than 7% – Maximum conservation efforts are encouraged. Flex Your Power starts requesting that people conserve, turn off appliances, etc.

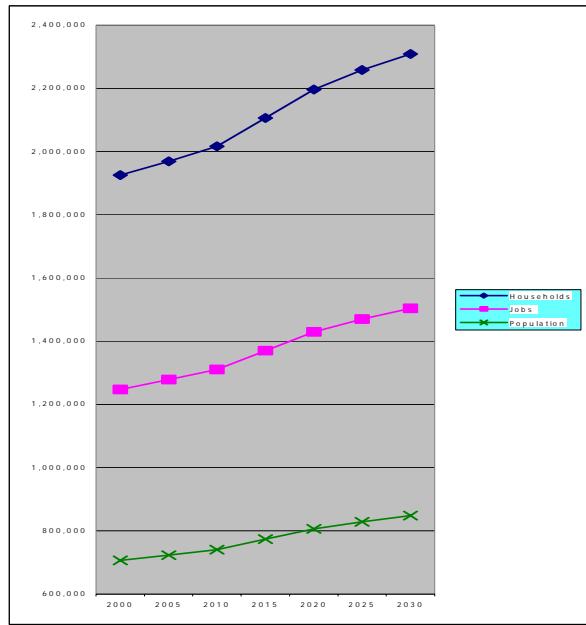
Stage 2 – Less than 5% – Maximum conservation encouraged and ISO begins to curtail interruptible loads with customers who participate in load reduction programs.

Stage 3 – Less than 2.5% – CAISO begins to curtail loads to utilities and schedule brown outs.

The 7% margin is a basic amount of additional generation required to account for sudden increases in electric load and/or loss of a generator unit on-line such that reliable electric service is maintained. This year, in spite of exceptionally hot months in June and July, the PG&E projected peak was not reached in San Mateo County; however stage 2 and 3 alerts were implemented due to insufficient generation in reserve and many loads were taken offline in order to avoid reaching the projected peak.

If you would like to follow the daily peak demand for California and any alerts that are issued, see: <http://www.caiso.com/outlook/SystemStatus.html>

Growth Projections from the Association of Bay Area Governments (ABAG)



ABAG predicts that San Mateo County population and number of households will increase by 17% in the next 20 years and jobs will grow by 51%.

San Mateo (16%), Redwood City (14%) and Daly City (13%) have the highest percentage of overall countywide population increases.

Most of the new jobs in the county will be in San Mateo (14%), Redwood City (12%), South San Francisco (9%) and the Unincorporated County (9%).

ABAG Growth Charts, by city, are included in the appendix.

For comparison to the following projections by PG&E, ABAG's countywide projections for 5 years (2005 – 2010) are 2.5% for population, 2.7% for households and 9.5% for jobs.

Energy Projections for Megawatts per Year

In the Greater Bay Area 2006 Assessment report by PG&E, growth for the next 5 years of yearly usage is projected to be at 1% per year for the Peninsula area (which includes San Mateo County) and 1.1% per year for the City and County of San Francisco. These two transmission areas share the use of the transmission lines in San Mateo County. Projections from PG&E beyond the next 5 years are not available.

Other local factors to consider are changes in our consumption patterns that might not be so easily quantified and which may or may not be factored into PG&E's projections. Changes such as Caltrain converting to electricity, an increase in the usage of electric cars, tougher emission standards that require more energy and new, more energy-intensive water treatment processes may raise demand for electricity. Smart Growth policies, increased efficiencies in new products and rising awareness in energy design for development projects may mitigate the increases.

Peak Demand Issues

When we consider the constraints of infrastructure – how much can be transmitted or generated at any given moment – and whether or not there is sufficient infrastructure for future needs, the key factor is peak demand. Peak demand is similar to rush hour traffic. Reducing the number of the cars on the roads is good, but reducing them during rush hour is more important. In the case of electricity, exceeding the capacity of a system is

equivalent to a major traffic jam.

The following chart includes the peak projections for the next ten years for the Peninsula, with the load for 2016 showing an 11% increase over 2005.

1 in 10 Division Loads (Peak Projections in megawatts)

	2005 (Normal to 1-in-10)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Peninsula	987	1002	1016	1029	1036	1045	1056	1063	1072	1079	1087	1095
San Francisco	924	937	949	960	969	978	990	999	1009	1018	1027	1036

PG&E 2006-2016 Base Case Loads Report

This is the data that is used for future planning by the cadres of analysts in CAISO, PG&E and CPUC who work on projections and managing the system. These numbers also represent the current or planned capacity of the system. Each year, PG&E reviews the current demand data and confirms or adjusts projections in their annual planning process for both transmission and generation. The planning process assures that they are planning on no deficiencies in being able to provide reliable load via our transmission system, which means that if the projects listed in the plan are implemented there should be adequate power to all users for the load corresponding to the maximum temperature predicted to occur once in every ten years. The planning process limits the financial impact on ratepayers by developing a series of projects that will provide needed infrastructure without over-development.

Recommendations for the USTF to consider:

1. Request that the County and/or C/CAG stay involved and informed in the energy transmission planning process and stakeholder group in order to inform this committee (and/or future energy committees, CMEQ, C/CAG) of the following:
 - a. Any new transmission projects being planned within San Mateo County
 - b. Any other projects or situations that might affect the availability of sufficient power to meet users's needs in the county.
2. Consider ways in which to encourage, require or offer incentives for conservation, efficiency, peak load demand reduction and renewable energy sources to reduce overall and peak energy demand in the county. Doing so will slow down the need for more energy infrastructure, and allow more margin leeway for the agencies managing the system.
3. Suggest that cities require energy efficient green buildings for new municipal buildings.

Appendix: ABAG projections with added column to calculate increase from 2005 to 2030.

TOTAL POPULATION

JURISDICTIONAL BOUNDARY	2000	2005	2010	2015	2020	2025	2030	% increase from 2005 to 2030	% of countywide growth from 2005 to 2030
ATHERTON	7,194	7,300	7,400	7,600	7,900	8,100	8,200	12%	1%
BELMONT	25,123	25,300	25,800	26,500	27,300	27,800	28,400	12%	2%
BRISBANE	3,597	3,750	3,990	4,330	4,660	4,840	5,240	40%	1%
BURLINGAME	28,158	28,200	28,900	29,700	30,200	30,400	30,500	8%	2%
COLMA	1,187	1,350	1,410	1,570	1,640	1,760	1,860	38%	0%
DALY CITY	103,625	104,100	106,000	110,000	114,300	117,400	121,000	16%	13%
EAST PALO ALTO	29,506	32,700	35,100	37,700	39,600	41,400	43,600	33%	9%
FOSTER CITY	28,803	29,800	30,200	30,900	31,500	32,000	32,500	9%	2%
HALF MOON BAY	11,842	12,500	13,200	13,800	14,400	14,600	14,900	19%	2%
HILLSBOROUGH	10,825	11,000	11,100	11,300	11,500	11,600	11,800	7%	1%
MENLO PARK	30,785	30,800	31,100	32,500	34,200	35,400	36,200	18%	4%
MILLBRAE	20,718	21,200	21,700	22,800	23,800	24,300	24,500	16%	3%
PACIFICA	38,390	38,500	38,900	39,800	40,800	41,600	42,100	9%	3%
PORTOLA VALLEY	4,462	4,600	4,700	4,800	4,900	5,000	5,000	9%	0%
REDWOOD CITY	75,402	77,300	79,200	82,100	87,100	91,400	94,300	22%	14%
SAN BRUNO	40,165	41,700	42,700	44,900	47,700	49,300	50,700	22%	7%
SAN CARLOS	27,718	27,900	28,400	29,900	31,900	32,900	33,700	21%	5%
SAN MATEO	92,482	94,900	98,000	104,700	109,800	112,700	114,900	21%	16%
SOUTH SAN FRANCISCO	60,552	61,000	62,300	65,600	68,500	70,400	71,600	17%	8%
WOODSIDE	5,352	5,500	5,600	5,700	5,800	6,000	6,100	11%	0%
UNINCORPORATED	61,277	63,800	65,300	67,700	69,000	70,300	71,300	12%	6%
SAN MATEO COUNTY	707,163	723,200	741,000	773,900	806,500	829,200	848,400	17%	100%

HOUSEHOLDS

JURISDICTIONAL BOUNDARY	2000	2005	2010	2015	2020	2025	2030	% increase from 2005 to 2030	% of countywide growth from 2005 to 2030
ATHERTON	2,413	2,450	2,510	2,570	2,640	2,700	2,770	13%	1%
BELMONT	10,418	10,580	10,820	11,030	11,300	11,550	11,810	12%	3%
BRISBANE	1,620	1,680	1,790	1,940	2,060	2,190	2,380	42%	2%
BURLINGAME	12,511	12,610	12,980	13,230	13,410	13,520	13,620	8%	2%
COLMA	327	380	400	440	470	500	530	39%	0%
DALY CITY	30,777	31,130	31,780	32,810	33,890	34,910	36,040	16%	11%
EAST PALO ALTO	6,976	7,780	8,390	9,090	9,880	10,490	11,110	43%	8%
FOSTER CITY	11,613	12,110	12,310	12,510	12,710	12,930	13,130	8%	2%
HALF MOON BAY	4,004	4,310	4,620	4,820	5,020	5,130	5,230	21%	2%
HILLSBOROUGH	3,689	3,770	3,820	3,870	3,920	3,980	4,030	7%	1%
MENLO PARK	12,387	12,450	12,660	13,120	13,730	14,220	14,620	17%	5%
MILLBRAE	7,956	8,110	8,320	8,620	8,990	9,190	9,290	15%	3%
PACIFICA	13,994	14,140	14,340	14,590	14,890	15,170	15,390	9%	3%
PORTOLA VALLEY	1,700	1,780	1,830	1,870	1,890	1,890	1,920	8%	0%
REDWOOD CITY	28,060	29,070	29,960	30,850	32,500	34,210	35,330	22%	14%
SAN BRUNO	14,677	15,370	15,790	16,500	17,440	18,070	18,560	21%	7%
SAN CARLOS	11,455	11,620	11,840	12,370	13,060	13,390	13,720	18%	5%
SAN MATEO	37,338	38,580	40,030	42,460	44,380	45,640	46,560	21%	18%
SOUTH SAN FRANCISCO	19,677	19,980	20,420	21,390	22,280	22,940	23,350	17%	8%
WOODSIDE	1,949	2,000	2,030	2,080	2,110	2,150	2,180	9%	0%
UNINCORPORATED	20,563	21,380	21,810	22,490	22,980	23,490	23,820	11%	6%
SAN MATEO COUNTY	254,104	261,280	268,450	278,650	289,550	298,260	305,390	17%	100%

TOTAL JOBS

JURISDICTIONAL BOUNDARY	2000	2005	2010	2015	2020	2025	2030	% increase from 2005 to 2030	% of countywide growth from 2005 to 2030
ATHERTON	2,830	2,530	2,730	3,100	3,380	3,630	3,710	47%	1%
BELMONT	7,710	6,970	8,290	9,330	10,290	11,400	12,570	80%	3%
BRISBANE	7,440	8,160	9,530	11,240	13,290	16,090	20,350	149%	7%
BURLINGAME	28,180	22,370	23,870	25,290	28,210	30,650	32,840	47%	6%
COLMA	3,150	3,180	3,370	3,770	4,080	4,250	4,570	44%	1%
DALY CITY	16,450	17,170	18,660	20,800	24,500	26,850	28,500	66%	7%
EAST PALO ALTO	3,040	2,130	2,740	3,460	4,050	4,890	6,110	187%	2%
FOSTER CITY	18,480	14,190	15,650	17,100	18,210	19,710	21,110	49%	4%
HALF MOON BAY	5,270	5,590	5,920	6,040	6,080	6,130	6,160	10%	0%
HILLSBOROUGH	2,130	1,660	1,740	1,830	1,890	1,970	2,030	22%	0%
MENLO PARK	36,130	25,810	28,680	31,010	33,170	36,170	40,120	55%	8%
MILLBRAE	7,020	6,860	7,260	8,190	8,870	9,550	9,960	45%	2%
PACIFICA	5,570	6,160	6,620	6,960	7,170	7,460	7,660	24%	1%
PORTOLA VALLEY	1,670	1,740	1,750	1,750	1,770	1,860	1,890	9%	0%
REDWOOD CITY	57,980	50,020	55,460	57,850	61,290	65,320	69,980	40%	12%
SAN BRUNO	17,050	13,810	14,990	18,490	22,090	25,610	28,220	104%	8%
SAN CARLOS	19,590	15,390	16,620	17,580	19,730	21,830	24,530	59%	5%
SAN MATEO	50,840	44,360	48,600	53,040	58,000	63,550	68,910	55%	14%
SOUTH SAN FRANCISCO	45,150	42,130	45,080	48,410	51,160	54,020	56,810	35%	9%
WOODSIDE	2,420	2,470	2,480	2,480	2,480	2,590	2,600	5%	0%
UNINCORPORATED	48,490	43,760	48,350	52,280	54,150	56,210	58,460	34%	9%
SAN MATEO COUNTY	386,590	336,460	368,390	400,000	433,860	469,740	507,090	51%	100%